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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,388	09/24/2003	Robert C. Elliott	200300857-1	3965

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EXAMINER

RAY, GOPAL C

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/669,388

Applicant(s)

ELLIOTT ET AL.

Examiner

Gopal C. Ray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 8, 13, 16-19, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 3, 5-7, 9-12, 14, 15, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/24/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. Claims 1-23 are presented for examination.
2. The drawings filed on 9/24/03 are acceptable by the examiner. However, direct any inquiries concerning drawing review by the USPTO draftsman to the Drawing Review Branch at (703) 305-8404.
3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Furthermore, all claims should be revised carefully to eliminate all grammatical errors and antecedent basis problems.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:  
A person shall be entitled to a patent unless –  
  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
5. Claims 1, 8, 13, 16, 18 and 22 are rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent 5,630,169 granted to Jackson.

As per claim 1, the reference of Jackson teaches "plural storage subsystems, each storage subsystem having a controller, an expander, and zero or more storage devices coupled to the expander, the controller to access storage devices through the expander, and the expander having interfaces for coupling to storage devices" in Fig. 3, elements CONTROLLERS A & B, IPI-2 and D0-D7; "an intercontroller link to connect expanders in different storage subsystems to enable the controller in one of the storage subsystems to communicate with the controller in another one of the storage subsystems through the expanders and intercontroller link" in Fig. 3, element SMI.

As per claim 8, the reference of Jackson teaches "plural computers comprising respective plural storage subsystems" in Fig. 3, elements H1 (A16) and H2 (A17).

As per claim 13, the claim recites a method. However, the limitations of the claim is parallel to the limitations of claim 1. In teaching the construction and use of the device, US Patent 5,630,169 granted to Jackson teaches a corresponding method.

As per claim 16, the reference of Jackson teaches the added limitation of the claim in Fig. 3, elements CONTROLLER B, IPI-2 and any one of D0-D7.

As per claim 18, the claim is a subset of claim 1 and the relevant portion of the rejection in claim 1 is also applicable here.

As per claim 22, the claim is written in "means plus function" form. However, the claim is rejected for the same reasons as discussed in the rejection of claim 1 above.

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 5,630,169 granted to Jackson in view of over US Patent 6,381,674 granted to DeKoning et al.

As per claim 2, the added limitation of the claim, "wherein the controller, expander, and zero or more devices in each storage subsystem are coupled by a serial interconnect" was well known to one of ordinary skill in the art at the time the invention

was made as evidenced by DeKoning et al. The reference of DeKoning et al. teaches the feature in Fig. 4. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jackson to implement the serial interconnection feature to obtain the claimed invention because the serial interconnection is reliable and cost effective.

8. Claims 4, 19 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 5,630,169 granted to Jackson in view of common knowledge in the art.

As per claim 4, the added limitation of the claim, "wherein each storage subsystem includes serial attached small computer system interface SAS) phys" was well known to one of ordinary skill in the art at the time the invention was made as evidenced by applicant's admitted prior art on page 1, paragraph 3 of the specification of the invention. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jackson to implement the above feature so as to enable the system with a widely used standard and take advantage of the many benefits provided by the feature.

As per claims 19 and 23, the added limitations of the claims are rejected for the same reasons as discussed in the rejection of claim 4.

9. Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 5,630,169 granted to Jackson in view of over US Patent 5,790,775 granted to Marks et al.

As per claim 17, the added limitation of the claim, "storage subsystems to maintain cache coherency" was well known to one of ordinary skill in the art at the time the invention was made as evidenced by Marks et al. The reference of Marks et al. teaches the feature in Fig. 5, elements CACHE A, B LOCK. It would have been

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obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jackson to implement the above feature to obtain the claimed invention because it is expected in all computer systems with cache memory at least for the sake of data reliability.

10. Claims 3, 5-7, 9-12, 14, 15, 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an Examiner's Statement of Reasons for Allowance:

The claimed invention is directed to "system having storage subsystems and a link coupling the storage subsystems". The examiner has done complete search and found no prior art, alone or in combination, teaches or fairly suggests, "intercontroller link connecting expanders in storage subsystems at first and second levels" in combination with other claimed elements as claimed in claim 3. Similarly, remaining dependent claims each has at least one limitation which the prior art of record does not teach alone or in combination.

Applicants are reminded that each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in 37 CFR 1.56. Applicants are advised to submit any information material to patentability in accordance with 37 CFR 1.97 and 1.98. If applicants are aware of any better prior art than those of record, they must bring the prior art to the attention of the examiner.

Any comments considered necessary by applicant must be submitted in response to this office action to avoid processing delays. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is urged to consider the references. However, the references should be evaluated by what they suggest to one versed in the art, rather than by their specific disclosure. The prior art submitted by applicant has been considered by the examiner and made of record in the file.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gopal C. Ray whose telephone number is (571) 272-3631. The examiner can normally be reached on Monday - Friday from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart, can be reached on (571) 272-3632. The fax phone number for this Group is (571) 273-8300.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [[mark.rinehart@uspto.gov](mailto:mark.rinehart@uspto.gov)].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC central telephone number is (571) 272-2100.

Moreover, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lastly, paper copies of cited U.S. Patents and Patent Application Publications ceased to be mailed to applicants with office actions as of June 2004. Paper copies of Foreign Patents and Non-Patent Literature will continue to be included with office actions. These cited U.S. Patents and Patent Application Publications are available for download via Office's PAIR. As an alternate source, all U.S. Patents and Patent Application Publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. Patent or Patent Application Publications will not be granted.

  
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